

# Zentralblatt für Bakteriologie Mikrobiologie und Hygiene

International Journal of Microbiology and Hygiene

## Abstracts

Medical Microbiology · Virology · Parasitology  
Hygiene · Preventive Medicine

Editors: G. Henneberg, Berlin (West) · H. D. Brede, Frankfurt a. M.  
H. Petri, Berlin (West)

In Cooperation with W. Bartocha, Berlin (West) · H. Brunner, Wuppertal  
K. A. W. Gerber, Berlin (West) · H. Hussels, Berlin (West) · W. Köhler, Jena  
H. Krauss, Gießen · G. Linzenmeier, Essen · R. Lütticken, Köln  
H. Mochmann, Berlin-Buch · G. Peters, Köln · H. Raettig, Berlin (West)  
A. Rodloff, Berlin (West) · G. Schallehn, Bonn · R. Sonak, Münster  
G. Spicher, Berlin (West) · F. Staib, Berlin (West) · G. Steidten, Berlin (West)  
H. Stolp, Bayreuth · H. Werner, Berlin (West)

Volume 290



Gustav Fischer Verlag · Stuttgart · New York · 1985

ISSN 0177-3100

© Gustav Fischer Verlag, Stuttgart/New York 1985  
Alle Rechte vorbehalten  
Druck: Karl Grammlich, Pliezhausen  
Printed in Germany

# CONTENTS

General Medical Microbiology	97-99, 289-309, 449-498
History, Epidemiology, Communicable Diseases (Legislation)	
General, History	
Epidemiology, Geomedicine	
Communicable Diseases, Legislation and Statistics	
Biology of Microorganisms	449-485
Taxonomy, Classification, Description of Bacteria	449-452
Morphology, Ultrastructure, Chemical Composition, Function	452-453
Nuclear Region	452
Ribosomes	
Cytoplasmic Membrane	
Cell Envelope: Cell Wall, Outer Membrane Structures	452
Flagella	452-453
Endospores	453
Protoplasts, Spheroplasts, L-Forms	453
Other Cell Structures	453
Physiology	453-458
General	453-455
Nutrition, Transport	455-456
Growth	456
Bacterial Adhesion, Colonization	456-457
Antimicrobial Effects	456-457
Drug Resistance	457-458
Pathogenicity, Virulence	458
Metabolism	458-468
Energy Metabolism: Electron Transfer, Aerobic and Anaerobic Respiration, Fermentations	458-459
Pathways, Transformations	459-460
Metabolism and Biosynthesis of	
Proteins, Peptides, Amino Acids, Other Organic N-Compounds	460
Nucleic Acids, Nucleotides, Nucleosides, Purine and Pyrimidine Bases	460
Carbohydrates, Polysaccharides, Lipopolysaccharides	460-461
Lipids, Glycolipids, Phospholipids, Lipoproteins, Fatty Acids	461
Murein, Cell Membrane Constituents	462
Enzymes and their Regulation	462-465
Mineral Metabolism	465
Chemolithotrophic, Methylophilic, Methanogenic, Phototrophic Microorganisms	465-466
Microbial Products incl. Antibiotics and Toxins	467-468
N <sub>2</sub> -Fixation	468
Genetics and Molecular Biology	468-484
General, Biochemical Genetics	468-473
Cloning, Genetic Engineering	473-476
Mutants	476-479
Gene Transfer	479-480
Plasmids	480-482
Bacterial Viruses	483-484
Bacteriocins	484

Applied Microbiology and Biotechnology	484-488
Industrial Processes and Products	484-488
Food Microbiology	488
Biodeterioration	
Microbial Ecology	488
General	
Habitats, Dispersal, Interactions	488
Methods in Microbiology	486-498
Physical Methods	486-488
Chemical Methods	487-488
Analytical Methods	488-489
Stains	489
Electron Microscopy	489
Culture Media	489-491
Isolation, Cultivation	491-494
Diagnosis, Identification	494-496
Serological Methods	496-498
Susceptibility Testing	498
Methods of Preservation	
Cell Culture	
Laboratory Animals, Animal Experiments	498
Disinfection, Sterilization, Pest Control	97-99
Disinfection	97-98
Pasteurization and Preservation	98
Sterilization	98
Inactivation and Reactivation of Microorganisms:	
Other Information	
Pest Control	
Chemotherapeutics and Chemotherapy	289-303
General, Methods of Evaluation	289-293
Chemotherapeutics	293-303
Synthetic Substances	293-296
$\beta$ -Lactam Antibiotics	296-299
Other Antibiotics	299-303
Chemotherapy	303-309
Immunity and Blood-group Research	1-54, 193-254
Immunology	1-54, 193-264
Laboratory Techniques	1-4, 193-195
General Immunology	4-6, 195-196
Cellular Immunology	7-10, 196-202
Natural Killer Cells	10-12
Antigens (Immunogens)	12-15, 202-205
Incomplete Antigens	
Antibodies, Immunoglobulins	15-25, 205-208
Structure and Function	15-22
Antibody Production	
Immune Deficiency	
Monoclonal Antibodies	22-24, 208-209
AIDS (= Acquired Immunodeficiency Syndrom)	24-25, 209-211



Complement, Conglutinin, Properdin, Stimulin	25-27, 211-214
Interferon	27-28, 214-216
Antigen-Antibody Reactions and Complexes	216-217
Hypersensitivity, Immediate, Delayed, Allergens	28-29, 217-220
Allergy/Atopy	29-30
Anaphylaxis	220-221
Immunochemistry, Neuraminidase, Adjuvants	30-33, 221-224
Immune Modulators	33-34, 224-227
Interleukin	
Toxins/Endotoxins	34-36, 227-228
Immunosuppression	36-38
Suppression of the Immune Response	228-231
Serology of Infectious Diseases	38-40, 231-232
Serology of Non-infectious Diseases	
Serology of Chronic Polyarthritis	232-233
Autoimmunity	40-41
Autoimmune Diseases	
Tumor Immunology	41-42, 233-234
Transplantation-Immunology	42-45, 234-238
Immune Tolerance	45-46
Vaccines and Sera	46-48, 238-240
Applied Immunology	48-51, 240-242
Effects of Radiation on Immunological Reactions	
Immunogenetics	51-54, 243-245
Miscellaneous, Unspecific Defense Mechanisms	54, 246
Blood and Blood-group Serology	247-254
Blood, Serum Proteins, Serum Groups	247
Blood-groups (Erythrocyte-Determinants)	247-248
Blood-group Serology	248-251
Bloodtransfusions	251-254
Special Medical Microbiology, Including Communicable Diseases and their Control, Special Immunotherapy and Chemotherapy	100-144 255-260, 310-359 369-430, 499-518
Bacteriology	
Micrococcaceae	
Micrococcus	
Staphylococcus	
Streptococcaceae	310-332
Streptococcus (incl. <i>S. pneumoniae</i> )	310-332
Peptococcaceae	332
Peptococcus	332
Peptostreptococcus	
Sarcina	
Neisseriaceae	
Neisseria	
Neisseria gonorrhoeae	
Neisseria meningitidis	
Acinetobacter	
Moraxella	
Branhamella	
Other Neisseriaceae	

Veillonellaceae	
Lactobacillaceae	
Lactobacillus	
Listeria	
Erysipelothrix	
Enterobacteriaceae	100-109, 499-510
Escherichia coli	100-103, 500-501
Edwardsiella	
Citrobacter	103-104
Salmonella	104-106, 505-508
Shigella	106, 508-509
Klebsiella	107, 509
Enterobacter	509
Hafnia	
Serratia	107-108, 509
Proteus	108
Yersinia	108-109, 509-510
Erwinia	
Other Enterobacteriaceae	
Pseudomonadaceae	109-113, 510-513
Pseudomonas	109-113, 510-513
Vibrionaceae	255-260
Vibrio	255-256
Cholera	256-259
Aeromonas	259-260
Plesiomonas	260
Pasteurellaceae	333-338
Pasteurella	333-335
Haemophilus	335-338
Actinobacillus	338
Gram-Negative Aerobic Rods and Cocci	
Azotobacter	
Agrobacterium	
Acetobacter	
Legionellaceae	369-373
Legionella	369-373
Flavobacterium	373
Alcaligenes	
Brucella	373-374
Bordetella	374-378
Francisella	378
Anaerobic Gram-Negative Straight, Curved and Helical Rods	378-380
Bacteroidaceae	378-380
Bacteroides	378-380
Fusobacterium	378-380
Selenomonas	
Chromobacterium	
Cardiobacterium	
Gardnerella	
Eikenella	380
Streptobacillus	

## Veillonella

## Bacillaceae

## Bacillus

B. anthracis

## Clostridium

C. botulinum

C. difficile

C. perfringens

C. tetani

Clostridium sp.

## Corynebacteriaceae

381-383

## Corynebacterium

381-382

C. diphtheriae

382-383

## Arthrobacter

## Propionibacteriaceae

383

## Propionibacterium

383

## Eubacterium

## Actinomycetales

384-391

## Actinomycetaceae

384

Actinomyces (Actinomycose)

384

Bifidobacterium

## Mycobacteriaceae

384-391

## Mycobacterium

General Features

Infective Agents of Mammalian Tuberculosis

Mycobacterium tuberculosis

384-385

Mycobacterium bovis

385

Tuberculosis

385-386

Pathology

Immunology, BCG

386

Diagnosis

386-387

Chemotherapy

387

Epidemiology

## Atypical Mycobacteria

387-388

General Features

Runyon Group I Photochromogenic M.

Runyon Group II Scotochromogenic M.

Runyon Group III Nonchromogenic M.

Runyon Group IV Rapidly Growing M.

Uncertain Affiliation

Mycobacterium leprae

388-389

Leprosy, Immunology

389-390

Mycobacterium lepraemurium

390-391

Mycobacterium ulcerans

391

Mycobacterium paratuberculosis

391

## Nocardiaceae

## Streptomycetaceae

## Other Actinomycetales

## Spirochaetaceae

## Spirochaeta

Treponema (Lues)	
Borrelia	
Leptospira	
Other Spirochaetales	
Mycoplasmatales	514-518
Mycoplasmataceae	514-518
Mycoplasma	514-518
Ureaplasma	518
Acholeplasmataceae	
Acholeplasma	
Other Mycoplasmatales	
Rickettsiales	
Rickettsia	
Coxiella	
Ehrlichia	
Bartonellaceae	
Bartonella	
Chlamydiales	
Chlamydia	
Trachomatis	
Psittaci	
Virology	114-144, 339-359
General	114-116, 339
Poxviridae	116, 339-340
Herpesviridae	116-120, 340-344
Adenoviridae	120-121, 345
Papovaviridae	121, 345-346
Parvoviridae	121-122, 346
Orthomyxoviridae	123-125, 346-347
Paramyxoviridae	125-126, 347-349
Rhabdoviridae	127, 349
Retroviridae	127-129, 349-350
AIDS	129-131, 357-358
Reoviridae	131-133, 350-351
Togaviridae	133-136, 351-353
Picornaviridae	136-138, 353-355
Coronaviridae	138, 355
Arenaviridae	138, 355
Bunyaviridae	
Hepatitis	139-142, 355-357
Slow Virus Infections	359
Other Viruses of Medical Interest	142-144, 359
Phages	
Insect and Plant Viruses	
Mycology	392-430
General Mycology	392-393
Special Mycology	393-430
Dermatophytes, Dermatomycoses	393-394
Yeast-like Fungi, Candidamycoses	395-406
Cryptococcus, Cryptococcosis	406-408
Dimorphic Fungi, Systemic Mycoses	408-415



Moniliales, Aspergillus, Aspergillosis	415-419
Mycotoxins	419-422
Dematiaceae, Phaeohyphomycosis, Chromomycosis	422-424
Mucorales, Entomophthorales, Mucormycosis, Entomophthoramycosis	424-426
Zygomycetes, Zygomycoses	
Therapy of Mycoses, Antimycotics	426-430
Medical Parasitology	145-170
Parasitology, General	145
Protozoa	145-162
Mastigophora (Flagellata)	145-151
Leishmania	145-147
Trypanosoma	147-150
Trichomonas	150
Giardia	151
Rhizopoda	151-153
Amoebina	151-153
Sporozoa	153-161
Coccidia	153
Cryptosporidia	153
Toxoplasma	153-155
Sarcosporidia/Isospora	
Haemosporidia	155-161
Other Protozoa	161-162
Theileria, Babesia, Piroplasma	
Anaplasma	
Pneumocystis	
Ciliata	
Helminthes	162-169
General	
Trematoda	162-165
Schistosoma	162-164
Fasciola	164
Trematoda etc.	164-165
Cestoda	165-166
Taenia	165
Echinococcus	165-166
Nematoda	166-170
Trichinella	166
Ascaris	166
Ancylostoma	166-167
Strongyloidae	167
Filaroidae	167-169
Toxocara	
Nematoda etc.	170
Other Helminths	
Arthropoda	170
Arachnoidea	
Insecta	
Insecticides	
Nematocera	
Other Arthropods	
Other Animals of Medical-parasitological Importance	

Infections and Infectious Diseases, Special Topics	171-174
Bacteremia	174
Environmental Hygiene	55-94, 175-192
	261-287, 360-362
	431-446, 519-528
Environment, General, Ecohygiene, Xenobiotics, Pests and Pesticides, Toxicology of Special Chemicals	261-275, 431-441
Environmental Hygiene, General	431-433
Environmental Planning	
Environmental Exposure, Ecotoxicity, General	261-262, 432
Xenobiotics, General	262, 433-434
Pests and Pesticides	262-265, 434-438
Toxicology of Special Chemicals	266-275, 438-441
Environment Protection	
Legislation, Guidelines	275
Air, Soil, Drinking Water and Industrial Water, Food, Pesticide Residues, Consumer Products	55-77
Air	55-61
General	
Weather and Climate	
Bioclimatology and Medical Meteorology	
Air Pollution	55-59
Air Examination	59
Effects	59-61
Legislation, Guidelines	
Soil	61-63
General	
Structure, Chemistry	
Microbiology, Fauna, Flora	
Soil Contamination	
Soil Examination	
Legislation, Guidelines	
Drinking Water and Industrial Water	63-68
General	63
Water Resources	
Water Economy	
Water Requirements and Water Consumption	
Water Constituents	
Water Catchment	
Raw Water	
Protective Zones	
Drinking Water Treatment and Disinfection	63-64
Water Distribution	
Water Examination	65-67
Water-borne Diseases	68
Legislation, Guidelines	
Food, Pesticide Residues, Consumer Products	68-77
General	68-69
Food Requirements	
Food Production	
Vitamins	
Nutritive Value	
Packaging	69

Food Preservation, Food Additives	69-71
Catering	
Food Examination	71-74
Injuries Caused by Malnutrition	74-75
Food Poisonings	75-76
Food Infections	
Pesticide Residues	76
Stimulants	76-77
Consumer Products	
Legislation, Guidelines	

Housing Hygiene and Community Hygiene, Hygiene of Public Facilities, Hygiene of Bathing and Swimming	175-178, 360-362
--	------------------

General	
Town Planning	
Traffic, Road Design	
Housing Hygiene	175, 360-361
Community Hygiene, General	
Hospital Design and Hygiene, Hospital-associated Infections	176, 361
School Design and Hygiene	
Kindergartens, Playgrounds	176, 361
Sport Facilities, Camping, Caravaning	
Balneology, Spas	
Design and Construction of Baths	
Swimming-bath Water, Examination, Treatment, Disinfection	177, 361-362
Swimming-bath Hygiene and Communicable Diseases	177-178, 362
Sauna, Solarium Facilities	178
Legislation, Guidelines	

Quality of Waters, Liquid and Solid Wastes	78-85, 179-192
	276-287, 519-525

General	78, 179
Quality of Surface Waters	78-79, 179-183
	276-277, 519
Water Pollutants	79-83, 183-187
	277-282, 519-522
Pollution Control of Surface Waters	
Liquid Wastes, Sewage	83-84, 187-188
	282-285, 522

Domestic and Communal Sewage, Industrial Wastes	
Hospital Wastes	
Sewage Treatment	84-85, 188-190
	282-285, 522-524
Sewage Sludge	190-191
	285-286, 524

Utilization of Sewage and Sewage Sludge	191-192, 286, 524
Examination of Liquid and Solid Wastes	
Solid Wastes	286-287

Domestic Refuse, Industrial Wastes	
Wastes from Hospitals and Medical Practice	
Utilization of Wastes (Recycling)	287
Compost	
Waste-associated Health Risks	
Legislation, Guidelines	

## Industrial Hygiene

86-94  
442-446, 525-528  
86, 442, 525

General

Physiology

Industrial Hygiene

Hazardous Materials and Other Dangerous  
Influences

86-93  
442-445, 525-528  
93-94, 445-446

Occupational Diseases

Legislation, Guidelines

## Public Health, Personal Hygiene

Public Health Services, Public Hygiene, Public Health,  
Personal Hygiene, Recreation

General

Public Health Services, General

Special Problems of Public Hygiene

Hygiene in Handling of Corpses, Burial and  
Cremation

Health Statistics

Epidemiology of Non-communicable Diseases

Noise, Stress

Poisonings

Welfare, Preventive Health Care and Health

Education

Perinatal Medicine

Population

Personal Hygiene, Clothing

Recreation, Leisure Time, Sport, Tourism

Legislation, Guidelines

## Book Reviews

95-96, 288  
363-368, 447-448